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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/753,965	01/03/2001	Clark Debs Jeffries	RAL920000100US1	1702
25299	7590	06/09/2004	EXAMINER	
IBM CORPORATION PO BOX 12195 DEPT 9CCA, BLDG 002 RESEARCH TRIANGLE PARK, NC 27709			KADING, JOSHUA A	
			ART UNIT	PAPER NUMBER
			2661	

DATE MAILED: 06/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/753,965

Applicant(s)

JEFFRIES ET AL.

Examiner

Joshua Kading

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 3 January 2001 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Figure 2, element 58 is not complete as it is missing textual information describing the step.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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5 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bawa et al. (U.S. Patent 6,697,333 B1) in view of Bertin et al. (U.S. Patent 6,400,681 B1).

10 Regarding claim 1, Bawa discloses "a method for providing a path for a new flow between a source node and a destination node in a network having a plurality of nodes and a plurality of links between the plurality of nodes, the plurality of nodes including the source node and the destination node, each of the plurality of links capable of including
15 a plurality of existing flows and having a capacity, each of the plurality of existing flows including a minimum guaranteed bandwidth, the method comprising the steps of:

(a) for a node of the plurality of nodes, determining a benefit for each link of a portion of the plurality of links, the portion of the plurality of links being coupled with the node...the node being a part of the path (col. 2, lines 60-64 where the bandwidth
20 utilization is directly proportional to the available bandwidth, which is equivalent to the benefit, because the more bandwidth utilized the less benefit the link has, i.e. the total capacity of the link less the bandwidth utilized gives the amount of bandwidth available); and

(b) selecting a link of the portion of the plurality of links to be part of the path, the
25 link having a maximum benefit for the first portion of the plurality of links, the link coupling the node with a second node of the plurality of nodes (col. 2, lines 60-64)."

However, Bawa lacks what Bertin discloses, that is "...the benefit being determined based on the capacity of the link and the minimum guaranteed bandwidth for a portion of the plurality of existing flows that is through the link (col. 10, lines 8-40 where the equivalent capacity represents a guaranteed minimum bandwidth for the link)..."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the benefit being determined based on the link capacity and minimum bandwidth for the purpose of determining how much a link can be loaded. The motivation for this being that links cannot be loaded up to their theoretical limits, therefore the actual limit must be known so as to not overload the link.

Regarding claim 9, Bawa discloses "a system for providing a path for a new flow between a source node and a destination node in a network having a plurality of nodes and a plurality of links between the plurality of nodes, the plurality of nodes including the source node and the destination node, each of the plurality of links capable of including a plurality of existing flows and having a capacity, each of the plurality of existing flows including a minimum guaranteed bandwidth, the system comprising:

...determining a benefit for each link of a portion of the plurality of links, the portion of the plurality of links being coupled with the node...the node being a part of the path (col. 2, lines 60-64 where the bandwidth utilization is directly proportional to the available bandwidth, which is equivalent to the benefit, because the more bandwidth

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utilized the less benefit the link has, i.e. the total capacity of the link less the bandwidth utilized gives the amount of bandwidth available); and

...selecting a link of the portion of the plurality of links to be part of the path, the link having a maximum benefit for the first portion of the plurality of links, the link
5 coupling the node with a second node of the plurality of nodes (col. 2, lines 60-64)..."

However, Bawa lacks what Bertin discloses, that is "first logic..." for the implementing the determining step (figure 3, element 305, col. 8, lines 61-col. 9, lines 1-8) and "second logic..." for implementing the selecting step (figure 3, element 305, col. 8, line 17), "...the benefit being determined based on the capacity of the link and the
10 minimum guaranteed bandwidth for a portion of the plurality of existing flows that is through the link (col. 10, lines 8-40 where the equivalent capacity represents a guaranteed minimum bandwidth for the link)..." , and "a memory coupled to the first logic and the second logic, the memory for storing identity of the link (figure 3, element 308 and 306)."

15 It would have been obvious to one with ordinary skill in the art at the time of invention to include the first and second logic, the memory, and the benefit being determined based on the link capacity and minimum bandwidth for the purpose of determining how much a link can be loaded. The motivation for this being that links cannot be loaded up to their theoretical limits, therefore the actual limit must be known
20 so as to not overload the link.

Regarding claim 2, Bawa and Bertin disclose the method of claim 1. However, Bertin lacks what Bawa further discloses, that is "the steps of (c) determining a next node of the plurality of nodes as being a node connected to the link selected in step (b) (col. 2, lines 60-65)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the extra steps with the method of claim 1 for the same reasons and motivation as in claim 1.

Regarding claim 10, Bawa and Bertin disclose the system of claim 9. However, Bertin lacks what Bawa further discloses, that is "determines a next node of the plurality of nodes as being a node connected to the link selected by the second logic (col. 2, lines 60-65)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the extra steps with the system of claim 9 for the same reasons and motivation as in claim 9.

Regarding claims 3 and 11, Bawa and Bertin disclose the method of claim 1 and the system of claim 9. However, Bawa lacks what Bertin further discloses, that is "the benefit is the capacity minus the sum of the minimum guaranteed bandwidth for each existing flow of the portion of the plurality of existing flows through the link (col. 10, lines 41-53 where again the benefit is directly proportional to the capacity and available capacity)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the further definition of the benefit with the method of claim 1 and the system of claim 9 for the same reasons and motivation as in claims 1 and 9.

Regarding claim 4, Bawa and Bertin disclose the method of claim 2. However, Bertin lacks what Bawa further discloses, that is "(d) repeating the benefit determining step (a), the link selecting step (b) and the next node determining step (c) until the destination node is reached (col. 2, lines 60-col. 3, line 1)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the repeating until the destination node is reached with the method of claim 2 for the same reasons and motivation as in claim 2.

Regarding claims 5 and 12, Bawa and Bertin disclose the method of claim 3 and the system of claim 9. However, Bawa and Bertin lack "determining a net benefit for the path, the net benefit of the path being the lowest maximum benefit." Although both Bawa and Bertin specifically lack determining a net benefit for a path based on the lowest maximum benefit of the links in the path, it would have been obvious to one with ordinary skill in the art at the time of invention to choose the lowest maximum benefit as an overall net benefit for the path. The reason is that a path in a communication system can only handle as much bandwidth as the lowest capacity of the links that make up the path. If an overall net capacity for a path is chosen that was higher than one of the links could handle the communication path could not transmit data. The motivation for choosing the lowest link benefit for the overall path net benefit is that this will allow communication to commence on the given path.

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Regarding claims 6 and 13, Bawa and Bertin disclose the method of claim 2 and the system of claim 10. However, Bawa lacks what Bertin further discloses, that is "eliminating a particular link of the portion of the plurality of links if the benefit for the particular link is less than or equal to zero (col. 10, lines 49-53 where although the specific values are not zero or less, these threshold values are design choices and the basic concept of eliminating a link (by not selecting it) based on the fact that is below a threshold is disclosed in Bertin)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the eliminating a link with the method of claim 2 and the system of claim 10 for the same reasons and motivation as in claims 2 and 10.

10

Regarding claim 8, Bawa discloses "a method for providing a path for a new flow between a source node and a destination node in a network having a plurality of nodes and a plurality of links between the plurality of nodes, the plurality of nodes including the source node and the destination node, each of the plurality of links capable of including a plurality of existing flows and having a capacity, each of the plurality of existing flows including a minimum guaranteed bandwidth, the method comprising the steps of:

(a) for a node of the plurality of nodes, determining a benefit for each link of a portion of the plurality of links, the portion of the plurality of links being coupled with the node...the node being a part of the path (col. 2, lines 60-64 where the bandwidth utilization is directly proportional to the available bandwidth, which is equivalent to the benefit, because the more bandwidth utilized the less benefit the link has, i.e. the total

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capacity of the link less the bandwidth utilized gives the amount of bandwidth available);
and

(b) selecting a link of the portion of the plurality of links to be part of the path, the link having a maximum benefit for the first portion of the plurality of links, the link

5 coupling the node with a second node of the plurality of nodes (col. 2, lines 60-64)."

However, Bawa lacks what Bertin discloses, that is "...the benefit being determined based on the capacity of the link and the minimum guaranteed bandwidth for a portion of the plurality of existing flows that is through the link (col. 10, lines 8-40 where the equivalent capacity represents a guaranteed minimum bandwidth for the
10 link)..."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the benefit being determined based on the link capacity and minimum bandwidth for the purpose of determining how much a link can be loaded. The motivation for this being that links cannot be loaded up to their theoretical limits,
15 therefore the actual limit must be known so as to not overload the link.

Bawa and Bertin further lack "a computer-readable medium including a program for providing a path for a new flow between a source node and a destination node in a network having a plurality of nodes and a plurality of links between the plurality of nodes, the plurality of nodes including the source node and the destination node, each
20 of the plurality of links capable of including a plurality of existing flows and having a capacity, each of the plurality of existing flows including a minimum guaranteed

bandwidth..." where the steps of the program are the method disclosed by Bawa and Bertin.

It would have been obvious to one with ordinary skill in the art at the time of invention to have the computer-readable medium with program implement the method steps because the only way to manipulate and control electrical data signals in a communication system is to use a computer program. The motivation is that a computer program offers the most efficient and effective way to deal with electrical signals.

Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bawa et al. and Bertin et al. as applied to claims 2 and 10 above, and further in view of Jurkevich et al. (U.S. Patent 5,164,938).

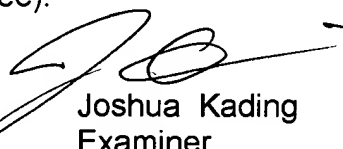
Regarding claims 7 and 14, Bawa and Bertin disclose the method of claim 2 and the system of claim 10 including "determining whether the path between the source node and destination node can exist (Bertin, col. 10, lines 49-53 where if the link is not selected than the path(s) the link belongs to cannot exist)." However, Bawa and Bertin lack what Jurkevich discloses, that is "notifying a user if the path cannot exist (cols. 43 and 44, claim 13 where the subscriber is notified of the need to reallocate because a path is too congested or cannot exist)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the notifying the user with the method of claim 2 and the system of claim 10 for the purpose of allowing the user to know which paths are not acceptable transmission paths. The motivation for this being that the user

can appropriately respond by selecting different paths or fixing the congestion problem on the congested path.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (703) 305-0342. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on (703) 305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joshua Kading
Examiner
Art Unit 2661

May 25, 2004



KENNETH VANDERPUYE
PRIMARY EXAMINER